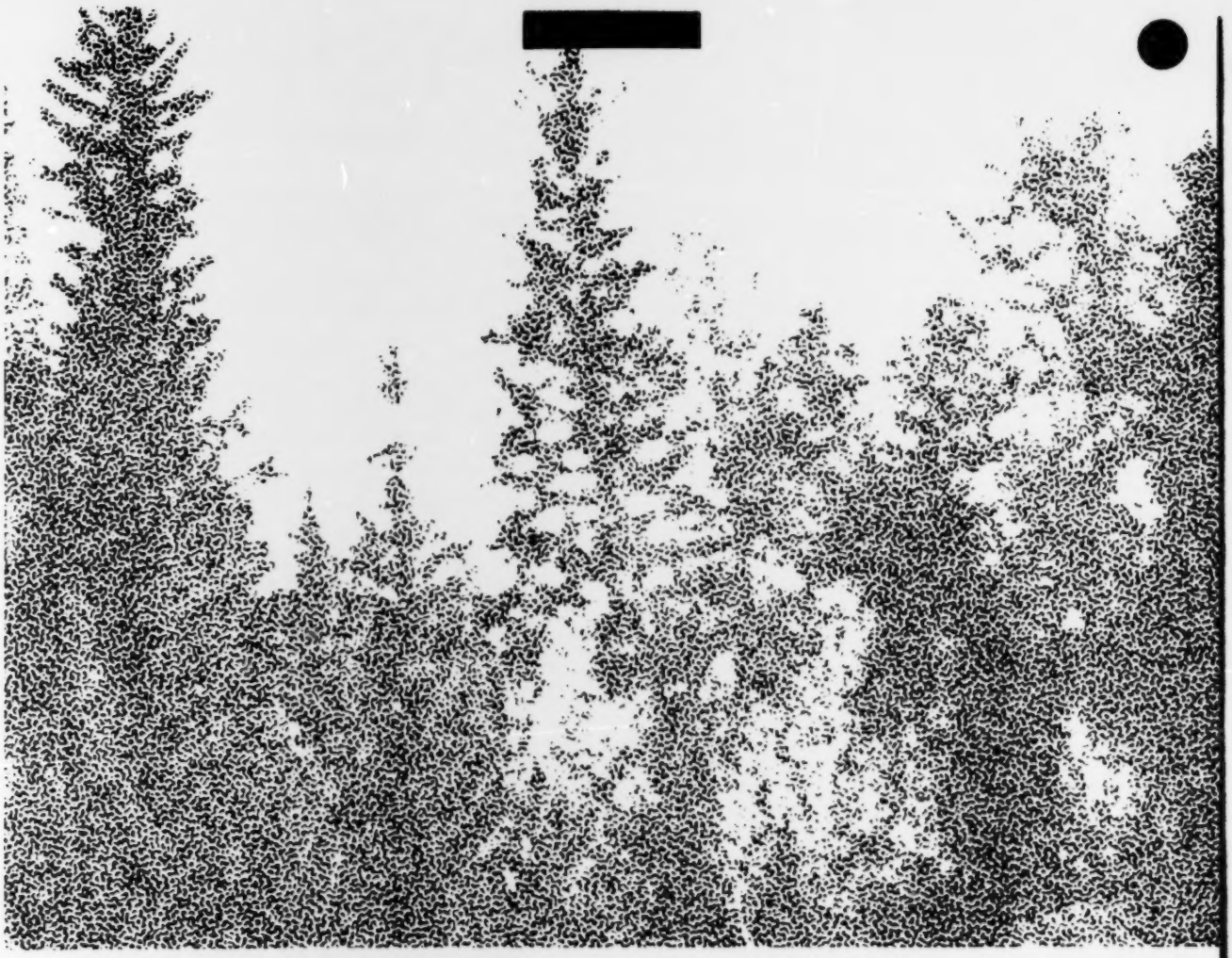
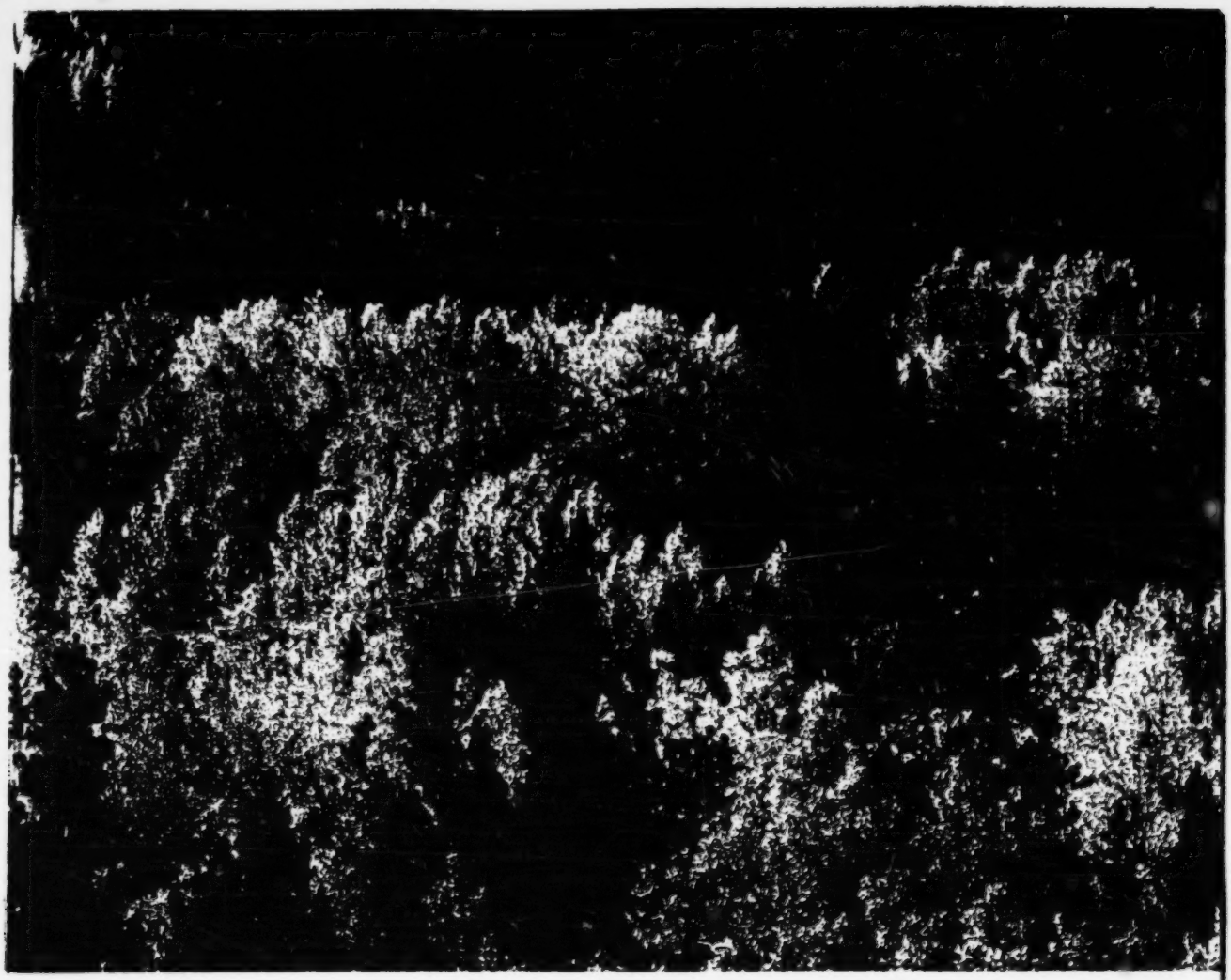


SLAVE LAKE
ATHABASCA
LAC LA BICHE

TIMBER DEVELOPMENT AREA

Alberta



SLAVE LAKE
ATHABASCA
LAC LA BICHE

TIMBER DEVELOPMENT AREA

THE FOREST RESOURCE

Alberta's reserves constitute the largest supply of coniferous and deciduous timber available in North America. This Timber Development Area (TDA) is one of Alberta's best aspen-spruce mixedwood development opportunities. Because areas similar to the Slave Lake/Athabasca/Lac La Biche TDA have already been developed, Alberta has become a dynamic force in the forest industry in Canada, and around the world. The predominant species in the TDA area is trembling aspen (Populus tremuloides), followed by white spruce (Picea glauca) and pine (Pinus banksiana). The aspen and the conifers are found in pure stands and in association with each other in mixedwood stands. These species when combined with available spruce/pine woodchips from sawmills in the area are suitable for production of high quality pulp, newsprint or other related products.

Slave Lake/Athabasca/Lac La Biche Timber Development Area Resource Overview

Deciduous Annual Allowable Cut	579,700 cubic meters (135,070,000 board feet)
Coniferous Annual Allowable Cut	218,100 cubic meters (50,817,000 board feet)
Total Annual Allowable Cut	797,800 cubic meters (185,887,000 board feet)
Gross Area	2,103,769 hectares (5,196,309 acres)
Additional wood supply	
Coniferous Annual Allowable Cut	60,000 cubic meters (13,980,000 board feet)

QUALITY OF RESOURCE

The Slave Lake/Athabasca/Lac La Biche Timber Development Area is located in north eastern Alberta, approximately 157 kilometers (98 miles) north of Edmonton. The total area of the TDA is 2,103,769 hectares (5,196,309 acres), and can be broken down by productivity class as follows:

Productive	1,076,853 hectares (2,659,827 acres)
Potentially Productive	107,448 hectares (265,396 acres)
Non-productive	919,468 hectares (2,271,086 acres)

The forest cover in the TDA is a combination of hardwoods and softwoods. Trembling aspen, (Populus tremuloides), white spruce (Picea glauca) and pine (Pinus banksiana) predominate. The trembling aspen and coniferous volume in the area is 21 million cubic meters (4.9 billion board feet) and 14 million cubic meters (3.3 billion board feet) respectively.

Growth rates in aspen range up to 2.41 cubic meters/hectare/year (228 board feet/acre/year) at 90 years of age. In mature and overmature stands, likely to be harvested over the next 20 years, the approximate average aspen tree size is 23.0 meters (75.5 feet) in height, and 26.8 centimeters (10.5 inches) in diameter at breast height. The average volume per aspen tree is 0.51 cubic meters (119 board feet - "Alberta log rule").

Growth rates in coniferous stands range up to 2.43 cubic meters/hectare/year (229 board feet/acre/year) at maturity; little reduction in growth rate is evident in overmature stands. In stands ready to harvest over the next twenty years, average coniferous tree size is 22.4 meters (73.5 feet) in height, and 26.0 centimeters (10.2 inches) in diameter at breast height. Average volume per tree is 0.44 cubic meters (103 board feet - "Alberta log rule").

For deciduous stands at or near maturity, advanced decay percentages range from 3.8 to 5.9 percent, increasing with stand height. The amount of decay present is highly variable and is influenced by a number of factors including site quality, tree growth, genetic constitution, stand density and age. For deciduous stands a high decay and subsequent mortality occurs after 100 years of age, with most stands having little or no merchantable deciduous volume at 180 years.

For coniferous stands at or near maturity, advanced decay percentages are remarkably low, particularly in slower growing stands. Even older stands are virtually defect free.

CULL PERCENTAGE (FOR PULP UTILIZATION)

- for stands likely to be harvested over the next 20 years

HEIGHT		CULL (as a percent of gross volume*)	
METERS	FEET	CONIFEROUS	DECIDUOUS
12 - 17	40 - 59	2.0	3.8
18 - 23	60 - 79	1.7	4.2
24 - 29	80 - 99	1.8	5.9

* 15 centimeters stump diameter and greater.

WOOD SUPPLY

The coniferous wood chip supply is available for purchase from the sawmills close to and within the TDA. At present these operators are capable of producing 121,000 bone dry units of chips. With future allocations of timber resources there will be a potential addition of 83,600 bone dry units of woodchips available.

Approximately two thirds of the deciduous wood supply is found in pure stands of aspen. The remainder is found in deciduous-coniferous mixedwood stands. This is readily available through integrated harvesting of the mixed stands in conjunction with coniferous timber operators in the area. The timber operators are also the suppliers of coniferous woodchips.

CONIFEROUS WOOD SUPPLY -
from the conifer roundwood supply area

Annual Allowable Cut	Committed	Uncommitted
218,100 cubic meters (50,817,000 board feet)	0 cubic meters	218,100 cubic meters (50,817,000 board feet)

DECIDUOUS WOOD SUPPLY -
from the entire TDA

Annual Allowable Cut	Committed	Uncommitted
579,700 cubic meters (135,070,000 board feet)	0 cubic meters	579,700 cubic meters (135,070,000 board feet)

ADDITIONAL WOOD SUPPLY
Coniferous (smaller diameter roundwood)

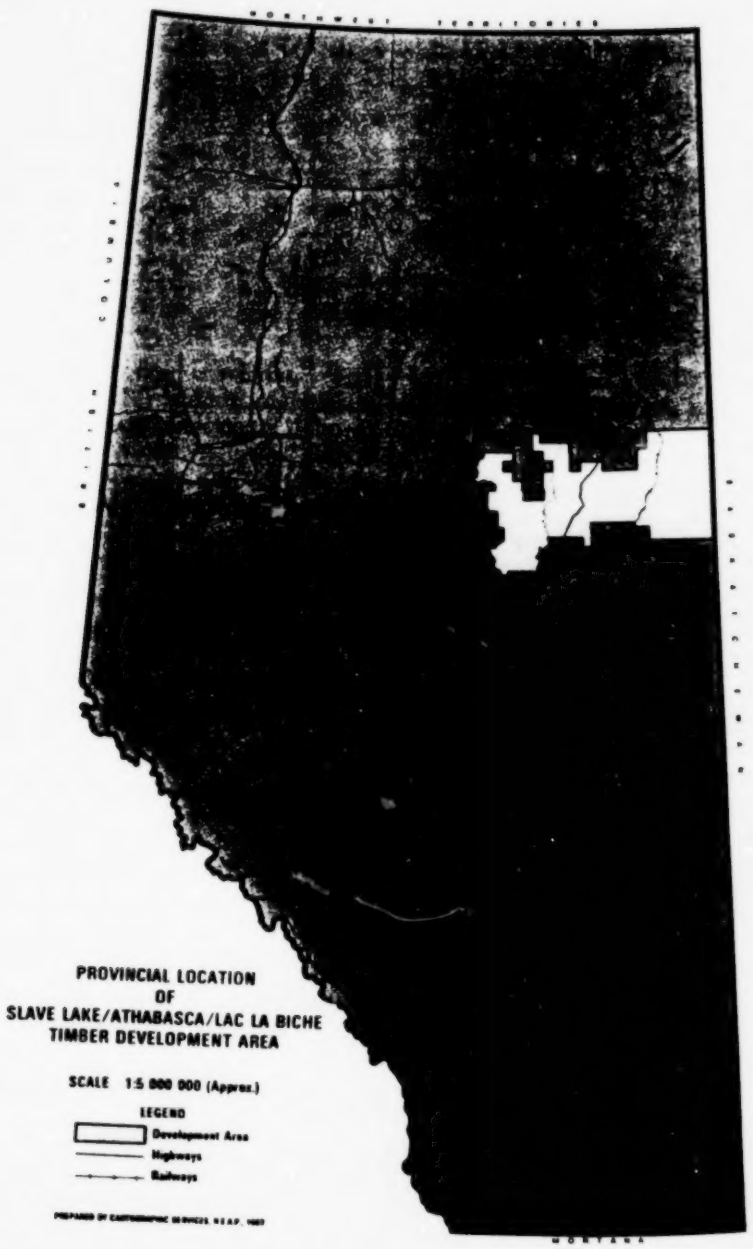
	Uncommitted
	60,000 cubic meters (13,980,000 board feet)

Coniferous Wood Chips

		Uncommitted
- existing	121,000 Bone dry units	342,500 cubic meters
- potential (future allocations)	83,600 Bone dry units	236,700 cubic meters

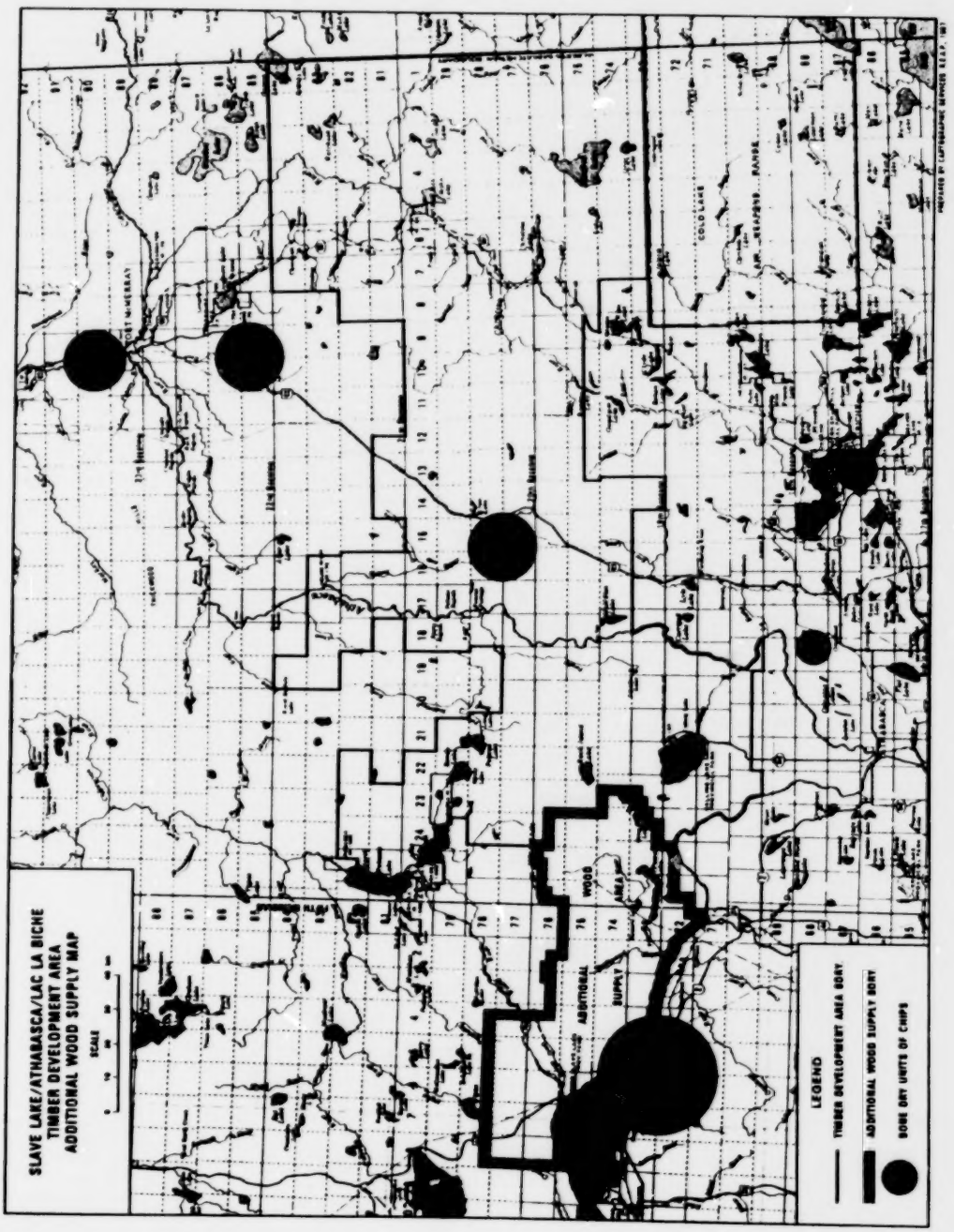
TOTAL WOOD SUPPLY AVAILABLE ANNUALLY 1,437,000 cubic meters

TDA LOCATION



CLASSIFICATION MAP

ADJACENT WOOD SUPPLY MAP



CONIFEROUS TIMBER OPERATORS AND WOOD CHIP SUPPLY

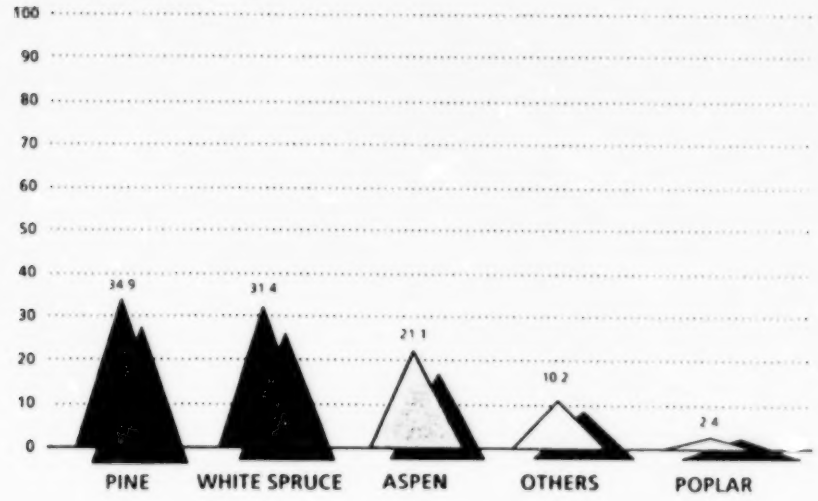
Mill Location	Company name and address	Supply (1000 Bone dry units)
Slave Lake	Zeidler Forest Industries Ltd. and Margaret Zeidler Box 4370 Edmonton, Alberta T6E 1N9	52
Slave Lake	Vanderwell Holdings Ltd. Box 415 Slave Lake, Alberta T0G 2A0	25
Grassland	Spruce Valley Mills Ltd. RR #1 Boyle, Alberta T0M 0M0	4
Lac La Biche	Ed Bobocel Lumber Co. Ltd. Box 1150 Lac La Biche, Alberta T0A 2C0	5
Hanging Stone	Pelican Spruce Mills Ltd.	12
House River	11550 - 154 Street Edmonton, Alberta T5M 3N8	12
Fort McMurray	Northland Forest Products Ltd. Box 5306 Fort McMurray, Alberta T9H 3G4	11
	TOTAL	**121**

In addition to the supply of roundwood in the Timber Development Area there is a significant supply of aspen on the private lands and Metis Settlements adjacent to the TDA. This resource is significant both in terms of its extent and proximity to the TDA. The developer of the TDA would be able to obtain this additional wood supply through purchase agreements with the Metis colonies and private land owners.

CONIFEROUS LAND BASE

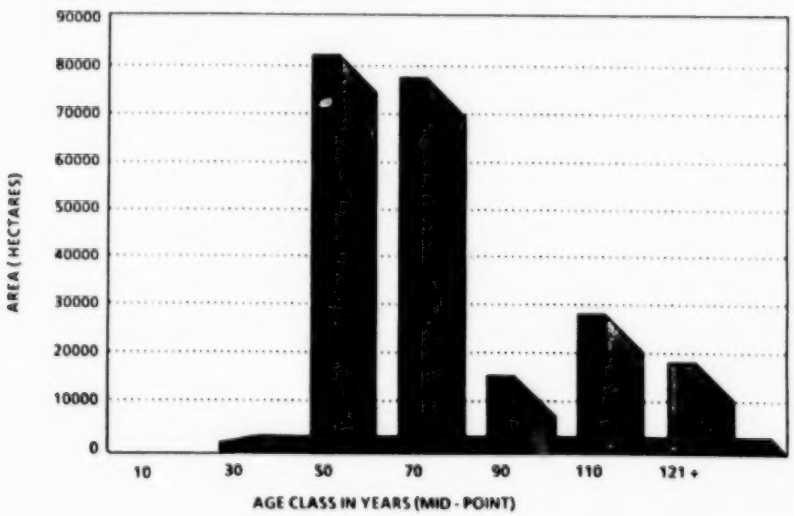
PERCENT VOLUME BY SPECIES

SLAVE LAKE/ATHABASCA/LAC LA BICHE TDA



AREA BY AGE CLASS

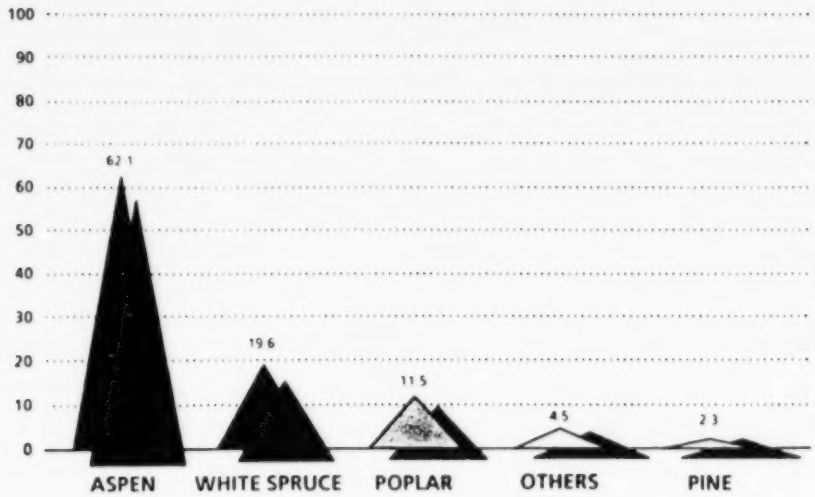
SLAVE LAKE/ATHABASCA/LAC LA BICHE TDA



DECIDUOUS LAND BASE

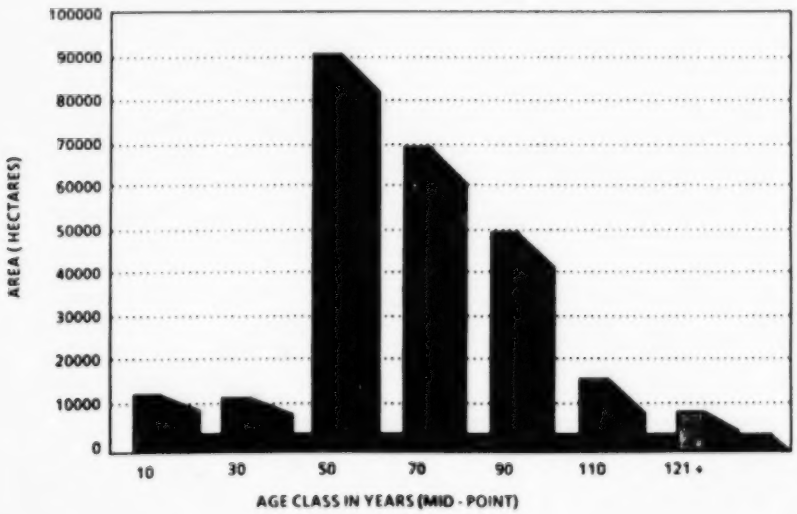
PERCENT VOLUME BY SPECIES

SLAVE LAKE/ATHABASCA/LAC LA BICHE TDA



AREA BY AGE CLASS

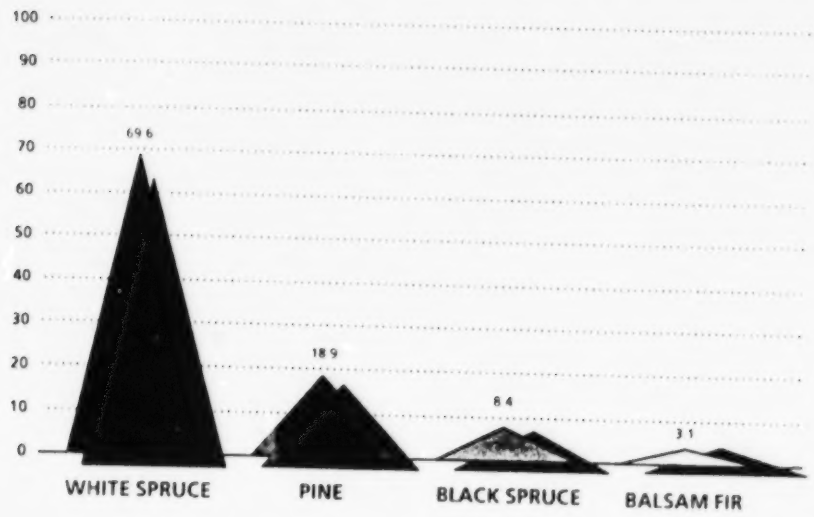
SLAVE LAKE/ATHABASCA/LAC LA BICHE TDA



CONIFEROUS WOOD CHIP SUPPLY

PERCENT VOLUME BY SPECIES

(EXISTING AND POTENTIAL)
SLAVE LAKE/ATHABASCA/LAC LA BICHE TDA



PROVINCIAL FULLY STOCKED YIELD TABLES
WHITE SPRUCE MEDIUM SITE

Utilization Standards: Minimum Stump Diameter - 15 cm (6 inch)
Minimum Top Diameter (inside bark) - 10 cm (4 inch)

TOTAL AGE (YR)	TOP HEIGHT (M)	TOP HEIGHT (FT)	GROSS VOLUME (CU M/HA)	GROSS VOLUME (MFBM/AC)	GROSS MAI (CU M/HA/YR)	GROSS VOLUME (FBM/AC/YR)	NO. OF TREES (PER HA)	NO. OF TREES (PER AC)
10	0.0	0	0.0	0.0	0.0	0.0	0	0
20	1.8	6	0.0	0.0	0.0	0.0	0	0
30	4.6	15	0.0	0.0	0.0	0.0	0	0
40	7.6	25	0.0	0.0	0.0	0.0	0	0
50	10.6	35	1.6	0.2	0.03	3.1	35	8
60	13.4	44	50.6	4.8	0.84	79.5	404	93
70	15.9	52	97.8	9.2	1.40	131.7	537	123
80	18.2	60	141.9	13.4	1.77	167.3	597	137
90	20.3	66	182.5	17.2	2.03	191.2	622	143
100	22.1	72	219.2	20.7	2.19	206.8	629	144
110	23.7	78	252.2	23.8	2.29	216.3	627	144
120	25.1	82	281.8	26.6	2.35	221.5	620	142
130	26.3	86	308.1	29.1	2.37	223.6	611	140
140	27.5	90	331.6	31.3	2.37	223.4	601	138
150	28.5	93	352.6	33.3	2.35	221.7	590	135
160	29.4	96	371.3	35.0	2.32	218.9	580	133
170	30.2	99	388.1	36.6	2.28	215.4	571	131
180	30.9	101	403.2	38.0	2.24	211.3	562	129

CM - CENTIMETERS
YR - YEARS
M - METERS
FT - FEET
CU M/HA - CUBIC METERS/HECTARE
CU M/HA/YR - CUBIC METERS/HECTARE/YEAR
MAI - MEAN ANNUAL INCREMENT
FBM/AC/YR - BOARD FEET/ACRE/YEAR
HA - HECTARE
AC - ACRE

STAND/STOCK TABLE
MATURE LAND BASE

Utilization Standards: Minimum Stump Diameter - 15 cm (6 inch)
Minimum Top Diameter (inside bark) - 10 cm (4 inch)

DBH (CM)	DBH (INCH)	NS/HA	NS/ACRE	GROSS VOLUME (CU M/HA)	GROSS VOLUME (FBM/AC)
12	4.7	90	36	NIL	NIL
14	5.5	79	32	2	189
16	6.3	71	29	6	566
18	7.1	58	23	8	755
20	7.9	54	22	10	943
22	8.7	45	18	12	1,132
24	9.4	40	16	13	1,226
26	10.2	36	15	15	1,415
28	11.0	30	12	15	1,415
30	11.8	27	11	16	1,509
32	12.6	22	9	16	1,509
34	13.4	16	6	14	1,321
36	14.2	15	6	14	1,321
38	15.0	12	5	13	1,226
40	15.7	10	4	12	1,132
42	16.5	7	3	9	849
44	17.3	5	2	8	755
46	18.1	4	2	7	660
48	18.9	3	1	5	472
50	19.7	2	1	4	377
52	20.5	1	0	3	283
54	21.3	1	0	3	283
AVERAGE DBH				22.6 centimeters	
AVERAGE HEIGHT				21.7 meters	
GROSS VOLUME/TREE				0.345 cubic meters	
CULL %				2.81	

DBH - DIAMETER BREAST HEIGHT
NS - NUMBER OF STEMS
HA - HECTARE
CU M/HA - CUBIC METERS/HECTARE
FBM/AC - BOARD FEET/ACRE

PROVINCIAL FULLY STOCKED YIELD TABLES
HARDWOODS MEDIUM SITE

Utilization Standards: Minimum Stump Diameter - 15 cm (6 inch)
Minimum Top Diameter (inside bark) - 10 cm (4 inch)

TOTAL AGE (YR)	TOP HEIGHT (M)	TOP HEIGHT (FT)	GROSS VOLUME (CU M/HA)	GROSS VOLUME (MFBM/AC)	GROSS MAI (CU M/HA/YR)	GROSS VOLUME (FBM/AC/YR)	NO. OF TREES (PER HA)	NO. OF TREES (PER AC)
10	4.2	13.7	0.0	0.0	0.0	0.0	0	0
20	9.0	29.4	0.0	0.0	0.0	0.0	0	0
30	12.7	41.5	0.0	0.0	0.0	0.0	0	0
40	15.5	50.8	7.8	0.7	0.19	18.3	138	56
50	17.7	58.1	70.0	6.6	1.40	131.9	544	220
60	19.5	63.8	119.3	11.3	1.99	187.5	617	250
70	20.9	68.4	158.8	15.0	2.27	214.0	615	249
80	22.0	72.1	190.9	18.0	2.39	225.0	592	240
90	22.9	75.3	217.1	20.5	2.41	227.5	565	229
100	23.7	77.9	238.9	22.5	2.39	225.3	540	219

CM - CENTIMETERS
YR - YEARS
M - METERS
FT - FEET
CU M/HA - CUBIC METERS/HECTARE
CU M/HA/YR - CUBIC METERS/HECTARE/YEAR
MAI - MEAN ANNUAL INCREMENT
FBM/AC/YR - BOARD FEET/ACRE/YEAR
HA - HECTARE
AC - ACRE

COMMUNITY PROFILE - SLAVE LAKE

The town of Slave Lake is central to the three component areas of the Slave Lake/Athabasca/Lac La Biche Timber Development Area. The town is situated on the shores of Lesser Slave Lake and offers an assortment of commercial and recreational opportunities. Slave Lake has a positive attitude and has a diverse economic base built on several different industries such as oil and gas, forestry and commercial fishing. A profile of the community is given below:

POPULATION		5,434
LABOUR FORCE	- male	1,370
	- female	900
	- a number of independent logging contractors, with considerable woods operation experience are located in Slave Lake.	
DISTANCE FROM MAJOR CENTRES		248 kilometers (154 miles) north of Edmonton 318 kilometers (199 miles) east of Grande Prairie
CONNECTING HIGHWAYS		#2 - high standard, paved #67 - high standard, paved
RAILWAY		Canadian National Railway
AIRPORT - longest runway		1,520 meters (5,000 feet) paved surface, night operation
WATER - major river - Slave River		(located within the town limits) - flow rate 60 cubic meters/second (2,119 cubic feet/second) - average from May to October
ELEVATION		582 meters (1,915 feet)
TEMPERATURE - seasonal averages		winter -18.7° centigrade (-17° F) summer +15.7° centigrade (60.3°F)
ANNUAL PRECIPITATION - rain		346.1 millimeters (13.6 inches)
- snow		135.3 centimeters (53.3 inches)
- total		475.4 millimeters (18.7 inches)
FROST FREE DAYS		95
ELECTRICAL POWER - industrial rates		Alberta Power Ltd. $7.05 - $13.85 per month per kilowatt dependent on demand plus $0.012 - $0.017 per kilowatt - hour energy charge. Rebates are available which may amount to as much as a 35% reduction in these rates.
NATURAL GAS - industrial rates		Town of Slave Lake. $2.49 - $2.75 per thousand cubic feet plus $7.50 - $500.00 service charge per month. The rates indicated are approximate guidelines. The rate will depend on the size of the operation and the demand for gas per month.

MILL RATE - industrial	$50.00/$1000 assessed tax value
- residential	$40.00/$1000 assessed tax value
PER CAPITA DEBT	$720.00 (1983)
MEDICAL	1 Hospital (34 beds) 8 Doctors 1 Medical Clinic 2 Dentists
EDUCATION	1 Playschool 2 Day Care/Nursery 1 Elementary (Grades 1 - 6) 1 Junior High (Grades 7 - 9) 1 High School (Grades 10 - 12) 1 Vocational School
RECREATION	Skating, Hunting, Golf, Baseball, Camping, Curling, Hockey, Boating, Skiing, Swimming, Sailing, Fishing, Tennis, Racquetball

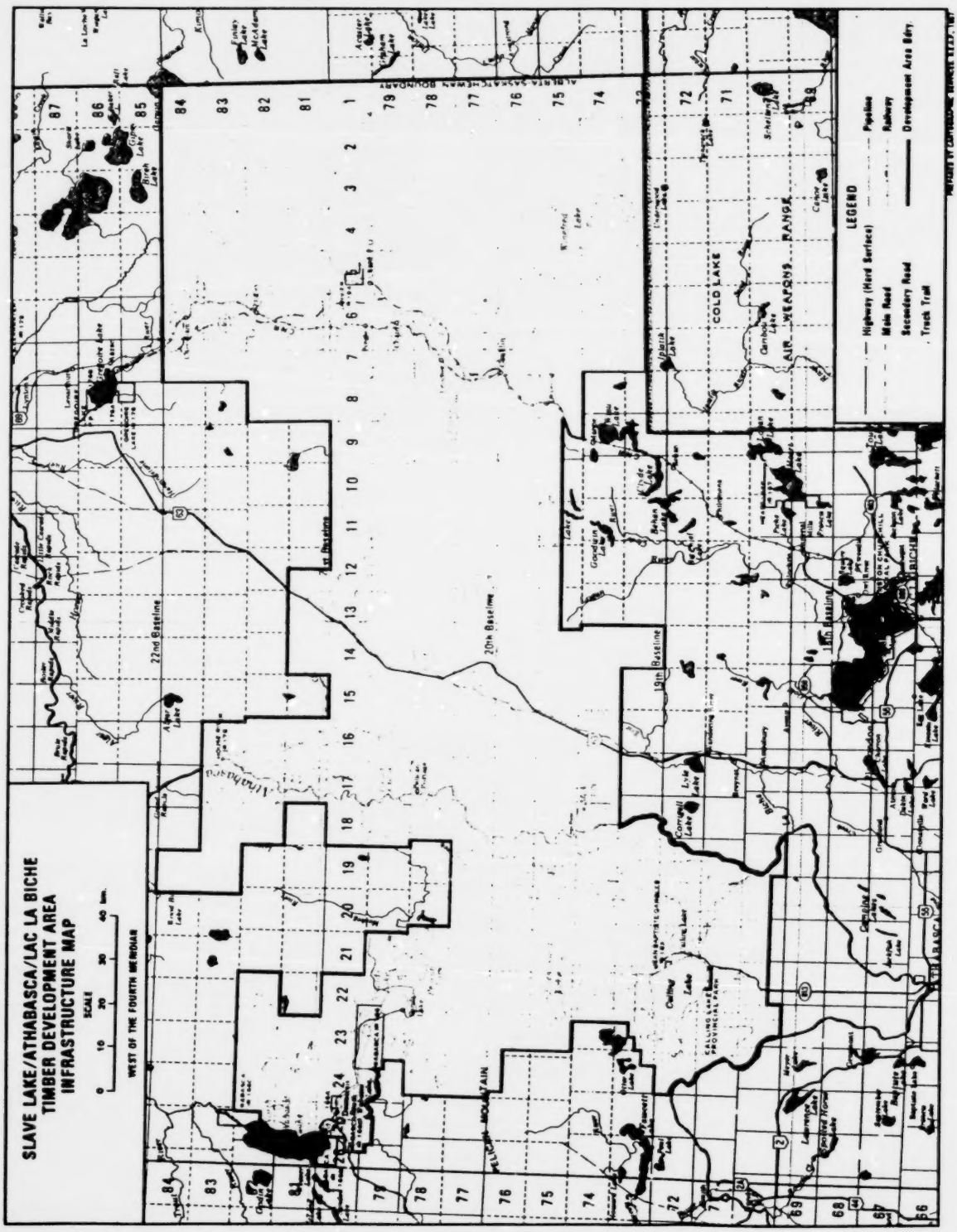
COMMUNITY PROFILE - ATHABASCA

The town of Athabasca is located south of the Slave Lake/Athabasca/Lac La Biche Timber Development Area. Athabasca's positive attitude and available infrastructure provide the necessary ingredients for economic development. The economic base of Athabasca is derived from agriculture, forest products, gas, oil and coal. A profile of the community is given below:

POPULATION		1,933
LABOUR FORCE	- male	450
	- female	340
	- a number of independent logging contractors, with considerable woods operation experience, are located in Athabasca.	
DISTANCE FROM MAJOR CENTRES		146 kilometers (91 miles) north of Edmonton
CONNECTING HIGHWAYS		#2 - high standard, paved.
RAILWAY		Canadian National Railway
AIRPORT - longest runway		912 meters (3,000 feet) paved surface, night operation
WATER - major river - Athabasca		Flow rate 703 cubic metres/second (24,826 cubic feet/second) average from May to October
ELEVATION		560 meters (1,842 feet)
TEMPERATURE - seasonal averages		winter -17.9° centigrade (0°F) summer 16.2° centigrade (61.3°F)

ANNUAL PRECIPITATION - rain	352.6 millimeters (13.88 inches)
- snow	140.6 centimeters (55.35 inches)
- total	493.1 millimeters (19.41 inches)
FROST FREE DAYS	111
ELECTRICAL POWER - industrial rates	Trans Alta Utility Corp. $8.76 - $15.17 per month per kilowatt dependent on demand plus $0.009 - $0.016 per kilowatt-hour energy charge.
NATURAL GAS - industrial rates	I.C.G. (Plains Western) $7.50 - $200.00 per month fixed charge plus $3.164 - $3.474 per thousand cubic feet. The rates vary according to consumption.
MILL RATE - industrial	$28.79/$1000 assessed tax value
- residential	$24.59/$1000 assessed tax value
PER CAPITA DEBT	$1,044.00
MEDICAL	1 Hospital (50 beds) 5 Doctors 2 Dentists
EDUCATION	1 Day Care/Nursery 1 Elementary (Grades 1 - 6) 1 Junior High (Grades 7 - 9) 1 High School (Grades 10 - 12) 1 University
RECREATION	Baseball, Curling, Hunting, Skiing, Skating, Golf, Fishing, Boating, Swimming, Tennis, Camping, Rifle Range

INFRASTRUCTURE MAP



CONTACTS

To assist prospective applicants in preparing their proposal for the Timber Development Area, a list of contact persons with Alberta Forestry, Lands and Wildlife is included.

Department	Contact Person
Alberta Forestry, Lands and Wildlife 9915 - 108 Street Edmonton, Alberta T5K 2C9	Mr. F.W. McDougall Deputy Minister Forestry, Lands and Wildlife (403) 427-3552 Mr. C.B. Smith Assistant Deputy Minister Alberta Forest Service (403) 427-3542

Also, in order to meet the growing demands of the forest industry the Forest Industry Development Division was organized within the Department of Forestry, Lands and Wildlife. The role of this new division is to assist new and existing forest companies and private investors to upgrade and utilize Alberta's vast uncommitted forest resources for a variety of forest products. The division is made up of people that can offer expertise in all aspects of forestry.

Mr. J.A. Brennan
Executive Officer
Forest Industry Development Division
930, 9942 - 108 Street
Edmonton, Alberta
T5K 2J5
(403) 422-7011